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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,874	11/26/2001	Toshiaki Hasegawa	1417-370	3253

7590 03/31/2003

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EXAMINER
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LISH, PETER J

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/991,874

Applicant(s)

HASEGAWA ET AL.

Examiner

Peter J Lish

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 April 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 and 22-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-29 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.                      6) ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-7 and 22-25, drawn to an apparatus or furnace, classified in class 110, subclass 225.
- II. Claims 8-21, drawn to a method of producing carbon black, classified in class 423, subclass 449.1.
- III. Claims 26-29, drawn to a method of performing combustion, classified in class 431, subclass 8.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used to practice another and materially different process, such as the incineration of waste.

Inventions I and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used to practice another and materially different process, such as the incineration of waste.

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Inventions II and III are at best related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention III has separate utility such as the burning of a fuel to produce a combustion product with little NO<sub>x</sub>. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Groups I or III, restriction for examination purposes as indicated is proper.

During a telephone conversation with Arthur R. Crawford on 03 March 2003, a provisional election was made with traverse to prosecute the invention of Group II, claims 8-21. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-7 and 22-29 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

*Claim 8 should be rewritten into independent form.*

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-12, 15-16, and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

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applicant regards as the invention. The term "in the vicinity" in claims 11-12, 15-16, and 21 is a relative term, which renders the claims indefinite. The term "in the vicinity" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 10-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Mise et al. (USPN 5,772,975).

Mise et al. disclose a process for the production of carbon black. The process involves three zones, a combustion zone (A), a reaction zone (B), and a reaction termination zone (C). In the combustion zone, the fuel and the oxygen-containing feed port open from the same side of the reactor in a spaced apart relationship. The oxygen-containing feed is optionally air (column 2, lines 37-42). The combustion zone is desired to be a sufficiently high temperature atmosphere

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so that the starting material hydrocarbon can be uniformly vaporized and thermally decomposed, and the temperature is preferably at least 1,600 °C, more preferably from 1,700 to 2,400 °C. Additionally, the oxygen concentration in the combustion gas is preferably at most 3%, more preferably from 0.05 to 1% (column 3, lines 3-25).

Claims 9 and 17-21 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mise et al.

Mise et al. is applied above. Mise et al. do not explicitly teach the flow rate of the oxygen-containing feed gas. However, it is expected that the flowrate of the oxygen-containing feed stream is above 55 m/s because the amount of air is between 427 and 586 km<sup>3</sup>/h and the combustion zone has an internal diameter of 50mm. Alternatively, the use of a specific flow rate is deemed to be the optimization of a known process, which could have been found through routine experimentation, and is held to be obvious. *In re Boesch*, 205 USPQ 215. It would have been obvious to one of ordinary skill at the time of invention to provide the oxygen-containing feed gas at a flow rate greater than 55 m/s in order to produce an amount of combustion gas which is effective for the decomposition of the carbon black starting material.

Mise et al. do not explicitly teach that a recirculating flow is formed between the oxygen-containing gas feed flow and the inner wall surface of the reactor. However, it is expected that this recirculating flow will exist because no difference is seen between the manner in which the fuel and the oxygen-containing gas of Mise et al. are fed and the manner by which the combustion gases of the applicant are fed. Alternatively, it would have been obvious to one of

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ordinary skill at the time of invention that there is a recirculating flow in the combustion zone of Mise et al. because if the manner in which the oxygen-containing feed and fuel gases are fed.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Lish whose telephone number is 703-308-1772. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-305-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

PL  
March 24, 2003



**STUART L. HENDRICKSON**  
**PRIMARY EXAMINER**